

CLAIMS

Please cancel Claims 1-21 and 25-31 without prejudice and add new claims 32-59, as shown below. This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claims 1 to 31 (Canceled).

32. (New) A multi-channel filtering system for use in a transceiver having a receive channel and a transmit channel, the multi-channel filtering system comprising:

a front-end multi-pole, multi-throw switch, comprising:

a front-end receive pole configured to couple to the receive channel at a first location thereof;

a front-end transmit pole configured to couple to the transmit channel at a first location thereof; and

a plurality of front-end throws, wherein the front-end receive pole is switchably coupled to one of the plurality of front-end throws, and wherein the front-end transmit pole is switchably coupled to one of the plurality of front-end throws;

a back-end multi-pole, multi-throw switch, comprising:

a back-end receive pole configured to couple to the receive channel at a second location thereof;

a back-end transmit pole configured to couple to the transmit channel at a second location thereof; and

a plurality of back-end throws, wherein the back-end receive pole is switchably coupled to one of the plurality of back-end throws, and wherein the back-end transmit pole is switchably coupled to one of the plurality of back-end throws; and

a plurality of filters interposed between the front-end and back-end multi-pole, multi-throw switches, each of the plurality of filters having a first port coupled to one of the plurality of front-end throws and a second port coupled to one of the plurality of back-end throws.

33. (New) The multi-channel filtering system of claim 32, wherein each of the front-end and back-end multi-pole, multi-throw switches comprises a two-pole, multi-throw switch.

34. (New) The multi-channel filtering system of claim 32, wherein two or more of the plurality of filters comprise filters of different bandwidths.

35. (New) The multi-channel filtering system of claim 34, wherein at least one of the plurality of filters comprises a bandpass filter.

36. (New) The multi-channel filtering system of claim 33, wherein each of the front-end and back-end multi-pole, multi-throw switches comprises two throws.

37. (New) The multi-channel filtering system of claim 32, wherein each of the front-end and back-end multi-pole, multi-throw switches comprises a control signal input for receiving a switch signal operable to select which pole is coupled to which throw.

38. (New) The multi-channel filtering system of claim 32, further comprising a switch controller having an input, a first output coupled to an input of the front-end multi-pole, multi-throw switch, and a second output coupled to an input of the back-end multi-pole, multi-throw switch,

the switch controller operable to receive a switch command, and to output, in response, a first switch control signal to the input of the front-end multi-pole, multi-throw switch, and a second switch control signal to the input of the back-end multi-pole, multi-throw switch,

the switch controller operable to synchronously control states of the front-end and back-end multi-pole, multi-throw switches so that respective throws of the front-end and back-end multi-pole, multi-throw switches are coupled to one of the plurality of filters to complete either the receive channel between the front-end receive pole and the back-end receive pole or the transmit channel between the front-end transmit pole and the back-end transmit pole.

39. (New) The multi-channel filtering system of claim 38, wherein the front-end and back-end multi-pole, multi-throw switches comprise FET switches.

40. (New) The multi-channel filtering system of claim 38, wherein the front-end and back-end multi-pole, multi-throw switches and the switch controller are fabricated using photolithographic semiconductor processing techniques.

41. (New) A transceiver having a transmit channel and a receive channel, the transceiver comprising:

a transceiver front-end, comprising:

a receive channel frequency converter having a first input for receiving a communication signal, a second input for receiving a reference signal, an output for providing a second receive signal comprising a frequency-translated version of the received communication signal; and

a transmit channel frequency converter having a first input for receiving a second transmit signal, a second input for receiving a reference signal, and an output for providing a carrier frequency signal comprising a frequency-translated version of the second transmit signal; and

a multi-channel filtering system coupled to the receive channel frequency converter and the transmit channel frequency converter, the multi-channel filtering system comprising:

a front-end multi-pole, multi-throw switch, comprising:

a front-end receive pole coupled to the output of the receive channel frequency converter;

a front-end transmit pole coupled to the first input of the transmit channel frequency converter; and

a plurality of front-end throws, wherein the front-end receive pole is switchably coupled to one of the plurality of front-end throws, and wherein the front-end transmit pole is switchably coupled to one of the plurality of front-end throws;

a back-end multi-pole, multi-throw switch, comprising:

a back-end receive pole coupled to the receive channel at a first location;

a back-end transmit pole coupled to the transmit channel at a second location; and

a plurality of back-end throws, wherein the back-end receive pole is switchably coupled to one of the plurality of back-end throws, and wherein the back-end transmit pole is switchably coupled to one of the plurality of back-end throws; and

a plurality of filters interposed between the front-end and back-end multi-pole, multi-throw switches, each of the plurality of filters having a first port coupled to one of the plurality of front-end throws and a second port coupled to one of the plurality of back-end throws.

42. (New) The transceiver of claim 41, wherein the receive channel frequency converter and the transmit channel frequency converter are coupled to a common frequency source.

43. (New) The transceiver of claim 42, wherein the common frequency source is frequency variable.

44. (New) The transceiver of claim 42, wherein the common frequency source is a fixed frequency source.

45. (New) The transceiver of claim 41, wherein the receive channel frequency converter comprises a downconverter circuit, and the transmit channel frequency converter comprises an upconverter circuit.

46. (New) The transceiver of claim 41, further comprising a transceiver back-end, the transceiver back-end comprising:

a receive channel second frequency converter coupled to the receive channel, having a first input for receiving a third receive signal, a second input for receiving a reference signal, an output for providing a fourth receive signal comprising a frequency-translated version of the third receive signal; and

a transmit channel second frequency converter coupled to the transmit channel, having a first input for receiving a first transmit signal, a second input for receiving a reference signal, and an output for providing a third transmit signal comprising a frequency-translated version of the first transmit signal.

47. (New) The transceiver of claim 46, wherein the receive channel second frequency converter comprises a downconverter circuit, and the transmit channel second frequency converter comprises an upconverter circuit.

48. (New) The transceiver of claim 41, wherein the front-end and back-end multi-pole, multi-throw switches comprise two-pole, multi-throw switches.

49. (New) The transceiver of claim 41, wherein two or more of the plurality of filters comprise filters of different bandwidths.

50. (New) The transceiver of claim 49, wherein the filters of different bandwidths are switchably selectable from one to another of the filters during signal reception or signal transmission.

51. (New) The transceiver of claim 41, wherein each of the plurality of filters comprises a bandpass filter.

52. (New) A multi-channel system for use with at least one of a receive channel and a transmit channel, the multi-channel system comprising:

a front-end multi-throw switch, comprising:
a plurality of front-end throws; and
at least one front-end pole configured to couple to one of a receive channel and a transmit channel at a first location, the at least one front-end pole switchably coupled to one of the plurality of front-end throws;
a back-end multi-throw switch, comprising:
a plurality of back-end throws; and
at least one back-end pole configured to couple to the one of the receive channel and the transmit channel at a second location, the at least one back-end pole switchably coupled to one of the plurality of back-end throws; and
a plurality of filters interposed between the front-end multi-throw switch and the back-end multi-throw switch, each of the plurality of filters having a first port coupled to one of the plurality of front-end throws and a second port coupled to one of the plurality of back-end throws.

53. (New) The multi-channel system of claim 52, wherein at least one of the plurality of filters comprises a bandpass filter.

54. (New) The multi-channel system of claim 52, wherein the front-end multi-throw switch comprises a control signal input for receiving a switch signal operable to select which of the plurality of front-end throws to couple to the at least one front-end pole; and
wherein the back-end multi-throw switch comprises a control signal input for receiving a switch signal operable to select which of the plurality of back-end throws to couple to the at least one back-end pole.

55. (New) The multi-channel system of claim 52, wherein at least one of the plurality of filters comprises an acoustic wave filter.

56. (New) The multi-channel system of claim 52, wherein the front-end multi-throw switch and the back-end multi-throw switch are configured to operate at about 300 MHz – 600 MHz frequency ranges.

57. (New) The multi-channel system of claim 52 further comprising:
a first frequency converter coupled to the at least one front-end pole, the first frequency converter having a first input for receiving a first signal, a second input for receiving a first reference signal, and a first output for providing a second signal comprising a frequency-translated version of the first signal, and

a second frequency converter coupled to the at least one back-end pole, the second frequency converter having a third input for receiving a third signal, a fourth input for receiving a second reference signal, and a second output for providing a fourth signal comprising a frequency-translated version of the third signal.

58. (New) The multi-channel system of claim 52, wherein two or more of the plurality of filters comprise filters of different bandwidths.

59. (New) The multi-channel system of claim 51, wherein the at least one front-end pole is for switchably coupling to one of the plurality of front-end throws during signal reception or signal transmission, and the at least one back-end pole is for switchably coupling to one of the plurality of back-end throws during signal reception or signal transmission.